

In the Claims

Please cancel claim 1, and add new claims 44-86.

1-43. (cancelled)

44. (New) A catheter comprising an elongate tubular member having a proximal end, a distal end, and a lumen extending therebetween, the lumen defined by an inner tubular liner, the elongate tubular member comprising:

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a relatively stiff proximal section comprising a metallic stiffener and a non-metallic stiffener, the metallic and non-metallic stiffeners being coaxially wound exterior to a proximal portion of the inner tubular liner; and

a relatively flexible distal section comprising the non-metallic stiffener coaxially wound exterior to a distal portion of the inner liner, the metallic stiffener terminating before reaching the distal section.

45. (New) The catheter of claim 44, wherein the non-metallic stiffener is interposed between the inner tubular liner and the metallic stiffener.

46. (New) The catheter of claim 44, wherein the metallic stiffener is interposed between the inner tubular liner and the non-metallic stiffener.

47. (New) The catheter of claim 44, wherein the metallic stiffener is a helically wound ribbon.

48. (New) The catheter of claim 44, wherein the non-metallic stiffener is a helically wound ribbon.

49. (New) The catheter of claim 44, wherein the metallic stiffener is helically wound in one direction and the non-metallic stiffener is helically wound in an opposite direction.

50. (New) The catheter of claim 44, wherein the metallic and non-metallic stiffeners are interwoven to form a braid member.

51. (New) The catheter of claim 50, wherein the metallic and non-metallic stiffeners each comprise a ribbon.

52. (New) The catheter of claim 51, wherein the ribbons have a thickness of between about 0.3 mil. and about 3.5 mil. and a width between about 2.5 mil. and about 12.0 mil.

B¹ 53. (New) The catheter of claim 50, wherein the metallic and non-metallic stiffeners each comprise four strands.

54. (New) The catheter of claim 50, wherein the braid member has a braid pitch and the braid pitch is not constant along the length of the braid member.

55. (New) The catheter of claim 44, wherein the metallic stiffener comprises a first braid member and the non-metallic stiffener comprises a second braid member.

56. (New) The catheter of claim 44, wherein the non-metallic stiffener comprises a material capable of undergoing permanent deformation upon exposure to steam.

57. (New) The catheter of claim 44, wherein the non-metallic stiffener comprises a polymer.

58. (New) The catheter of claim 57, wherein the polymer comprises a liquid crystal polymer.

59. (New) The catheter of claim 57, wherein the polymer comprises a material selected from the group consisting of polyimide, polyethylene, polyethylene terephthalate, and Nylon.

60. (New) The catheter of claim 44, wherein the metallic stiffener comprises a superelastic alloy.

61. (New) The catheter of claim 57, wherein the superelastic alloy comprises nickel and titanium.

62. (New) The catheter of claim 44, wherein the metallic stiffener comprises stainless steel.

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63. (New) The catheter of claim 44, wherein the metallic stiffener comprises a material selected from the group consisting of gold, platinum, and copper.

64. (New) The catheter of claim 44, wherein the metallic stiffener comprises a platinum-tungsten alloy.

65. (New) The catheter of claim 44, wherein the proximal and distal portions of the inner tubular liners each comprise a polymer.

66. (New) The catheter of claim 65, wherein the polymer is selected from the group consisting of polyimide, polyamide, polyester, polyethylene, polypropylene, polyvinyl chloride, polyfluorocarbons, polyurethane, polysulfone, ethyl vinyl acetate, polyether block amide, styrene-ethylene/butylene-styrene, styrene-butadiene-styrene, polyethylene terephthalate, and their mixtures, alloys, blends, copolymers, and block copolymers.

67. (New) The catheter of claim 44, wherein the proximal section comprises a proximal outer cover exterior to the metallic and non-metallic stiffeners, and the distal section comprises a distal outer cover exterior to the non-metallic stiffener.

68. (New) The catheter of claim 67, wherein the proximal and distal outer covers comprise a material selected from the group consisting of polyimide, polyamide, polyether block amide, styrene-ethylene/butylene-styrene, styrene-butadiene-styrene, polyethylene, polypropylene, polyvinyl chloride, fluoropolymer, vinylidene fluoride, polyurethane, and their mixtures, alloys, copolymers, and block copolymers.

69. (New) The catheter of claim 67, wherein the proximal and distal outer covers are integrally formed and comprise a polymer which can be heat-shrunk onto the metallic and non-metallic stiffeners.

70. (New) The catheter of claim 67, wherein at least one of the inner tubular liner and the outer covers are radiopaque.

71. (New) The catheter of claim 44, further comprising a removable, slidable guidewire placed interior to and in slidable relationship to the distal and proximal sections.

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72. (New) The catheter of claim 44, wherein non-metallic stiffener comprises a helically wound ribbon having a rectangular cross-section extending generally parallel to a longitudinal axis of the catheter in the proximal section, and extending generally perpendicular to the longitudinal axis of the catheter in the distal section.

73. (New) A catheter comprising an elongate tubular member having a proximal end, a distal end, and an inner lumen therebetween, the inner lumen defined by an inner tubular liner, the elongate tubular member comprising:

a relatively stiff proximal section comprising a proximal braid member comprising at least one metal strand and at least one non-metal strand, and a proximal outer cover, the braid being coaxially wound exterior to the inner tubular liner; and

a relatively flexible distal section comprising the inner tubular liner and a distal braid member comprising the at least one non-metal strand, and a distal outer cover, the at least one metal strand terminating before reaching the distal section.

74. (New) The catheter of claim 73, wherein the metal strand and the non-metal strand each comprise a ribbon.

75. (New) The catheter of claim 74, wherein the ribbons have a thickness of between about 0.5 mil. and about 3.5 mil. and a width between about 2.5 mil. and about 12.0 mil.

76. (New) The catheter of claim 73, wherein the at least one metal strand comprises four metal strands and the at least one non-metal strand comprises four non-metal strands.

77. (New) The catheter of claim 73, wherein the non-metal strand comprises a polymer.

78. (New) The catheter of claim 77, wherein the polymer comprises a liquid crystal polymer.

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79. (New) The catheter of claim 77, wherein the polymer comprises a material selected from the group consisting of polyimide, polyethylene, polyethylene terephthalate, and Nylon.

80. (New) The catheter of claim 73, wherein the metal strand comprises a superelastic alloy.

81. (New) The catheter of claim 80, wherein the superelastic alloy comprises nickel and titanium.

82. (New) The catheter of claim 73, wherein the metal strand comprises stainless steel.

83. (New) The catheter of claim 73, wherein the metal strand comprises a platinum-tungsten alloy.

84. (New) The catheter of claim 73, wherein the inner tubular liner and the proximal and distal outer covers comprise a polymer.

85. (New) The catheter of claim 73, further comprising a removable, slidable guidewire placed interior to and in slidable relationship to the distal and proximal sections.

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86. (New) The catheter of claim 73, wherein the distal section is disposed at the distal end of the catheter.
